PATENT ABSTRACTS OF JAPAN

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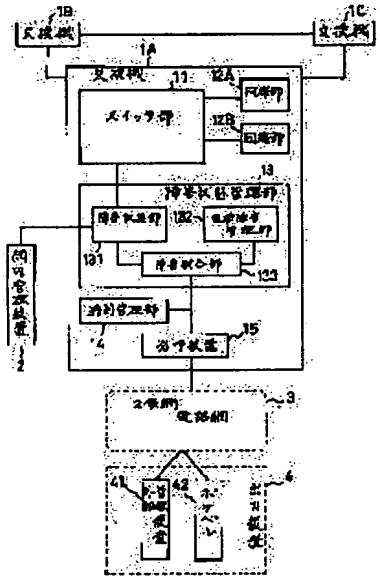
(71)Applicant : NEC CORP
(72)Inventor : TAKAMATSU TOSHIHIKO

(54) FAULT INFORMATION NOTICE SYSTEM FOR FRAME RELAY EXCHANGE

(57)Abstract:
PROBLEM TO BE SOLVED: To correctly transmit fault information to a manager managing faults on the occurrence of detection of faults in the exchange and to reduce the communication cost in this case.
SOLUTION: On the occurrence of an important fault in an exchange 1A or the like, a time management section 14 controls a dialer 15 to change an external notice destination (that is, an external management device 14 or a pocket pager 42) for each set time to inform the occurrence of the important fault. As a result, the important fault is surely transmitted to the notice destination and then the fault is quickly troubleshooted. Furthermore, since a manager is in the vicinity of an in-network management, equipment 2 does not inform fault information via a public network 3 for a time zone not requiring the information of the fault information via the public network 3 or in the case of a usual fault not requiring a quick response, the communication cost is reduced.



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DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention relates to the notice method of fault information in the Frame Relay swap device which transmits data based on a Frame Relay transmission protocol.
[0002]
[Description of the Prior Art] When generating of a failure is detected, he is trying to notify fault information conventionally to the within-the-net management equipment connected to this swap device through the dedicated line with this kind of Frame Relay swap device. Moreover, there are some which were notified to network administration equipment when the time of day which is usually accumulated into self-equipment in the case of the failure while notifying this important fault information to network administration equipment, using a public network immediately, when it is the important failure of specification [the failure detected as indicated by JP,3-285431,A, for example], and was set beforehand came.
[0003]
[Problem(s) to be Solved by the Invention] In such a swap device, it is carrying out through the public network which mentioned above the notice of a failure to network administration equipment etc., or the dedicated line. For this reason, when a manager was not near the network administration equipment, there was a fault that it could not respond promptly to the failure notified even if it notified the failure. Moreover, when the time zone in which accumulates the generated failure like JP,3-285431,A and a manager is near the network administration equipment came, there were some which notify the failure, but since [which does not require correspondence with the generated sudden failure] it was carried out even if it is usually a failure, the notice of a failure through such a public network also had the fault that communication link cost started. Therefore, this invention aims at reducing the communication link cost in this case while it transmits fault information to a manager side exactly, when a failure is detected by the Frame Relay swap device.
[0004]
[Means for Solving the Problem] In order to solve such a technical problem, this invention prepares the important fault management section which memorizes and manages an important failure, the failure collating section which judges whether it is the important failure this failure is remembered to be by the important fault management section at the time of failure generating, and the time-of-day-control section which changes the notice place through the public network of the important failure judged by the failure collating section for every time amount. Therefore, since the important failure which needs sudden correspondence is transmitted to the notice place managed by the time-of-day-control section, if the suitable information for the time-of-day-control section is set up, it will become possible to be able to transmit important fault information to a notice place certainly, consequently to correspond promptly to an important failure. Moreover, the within-the-net management equipment connected through a dedicated line and the failure collection section which collects the generated failures and transmits this fault information to within-the-net management equipment through a dedicated line are prepared, and the failure collating section cancels this failure, when the failure collected by the failure collection section does not correspond to an important failure. Consequently, since the fault information which does not require urgency is not transmitted to a notice place through a public network, it can reduce the communication link cost in the case of notifying fault information.
[0005]
[Embodiment of the Invention] Hereafter, this invention is explained with reference to a drawing. Drawing 1 is the block diagram showing the gestalt of operation of the notice method of a failure of the Frame Relay swap device concerning this invention. In this drawing, 1A-1C are Frame Relay swap devices (following, exchange), within-the-net management equipment 2 is connected to exchange 1A among each exchange, and exchange 1A is connected to the public network 3. And the output unit 4 which consists of the external management equipment (network administration equipment) 41 and the pocket bell (pocket bell) 42 grade which manage the failure situation of each exchange is connected to the public network 3.
[0006] Here, exchange 1A is constituted as follows. That is, they are the switch sections, such as a speech path, the circuit section whose 11 is 12A and whose 12B is circuit interfaces, such as the subscriber's loop, the fault-condition Management Department where 13 manages the fault condition of exchange 1A, the time-of-day-control section which manages the notice place and notice time of day of said fault condition into which 14 was inputted, and call origination equipment which carries out call origination of 15 to output unit 4 grade through a public network 3, and notifies the fault condition of exchange 1A. In addition, the fault-condition Management Department 13 consists of the failure collection section 131, the important fault

management section 132, and the failure collating section 133.

[0007] Thus, in constituted exchange 1A, if a failure is detected through the switch section 11, the notice of a failure will be performed to within-the-net management equipment 2 through a dedicated line at the fault-condition Management Department 13. Moreover, when this failure is an important failure, call origination equipment 15 carries out call origination to an output unit 4 through a public network 3, and notifies this important failure to an output unit 4 side. Moreover, the important failure which notified the important failure which he is trying to manage the notice place and notice time of day of this important failure, for example, was generated in a certain time zone to the external management equipment 41 in an output unit 4 as mentioned above, and was generated in other time zones controls call origination equipment 15 by the time-of-day-control section 14 to notify to a pocket bell 42.

[0008] Next, important section actuation of this invention is further explained to a detail using the flow chart of drawing 2 . If a failure (alarm) occurs in the system which consists of the exchanges 1A-1C (step S1), the failure collection section 131 in the fault-condition Management Department 13 will collect these failures through the switch section 11 (step S2). And the failure collection section 131 sends out this fault information also to the failure collating section 133 while transmitting the collected fault information to within-the-net management equipment 2 through a dedicated line.

[0009] In this case, in the failure collating section 133, the important failure memorized in the important fault management section 132 is read (step S3), and it judges whether the fault information sent from the failure collection section 131 corresponds to this important failure (step S4). And when it does not correspond to an important failure, this fault information is canceled (step S5). Moreover, when it corresponds to an important failure, the failure collating section 133 transmits this important fault information to the time-of-day-control section 14 and call origination equipment 15.

[0010] In this case, in the time-of-day-control section 14, the notice place of fault information according to a time zone is directed to call origination equipment 15 to call origination equipment 15. Call origination equipment 15 will transmit important fault information to which notice place in an output unit 4 (namely, external management equipment 41 or a pocket bell 42) through a public network 3, if call origination is performed to the directed notice place and a notice place answers (step S6).

[0011] The example which manages the notice place of important fault information for every time of day in the time-of-day-control section 14 here is explained. For example, to the time-of-day-control section 14, a failure is always notified to external management equipment 41, and it sets to a pocket bell 42, respectively so that a failure may be notified in the time zone by 6:00 from 18:00 among one day in the next morning. Then, the time-of-day-control section 14 directs to notify this important fault information to the external management equipment 41 in an output unit 4 to call origination equipment 15 first, when important fault information is received from the failure collating section 133. Moreover, it is directed to call origination equipment 15 that the time-of-day-control section 14 will notify this important fault information to the pocket bell 42 in an output unit 4 with reference to the time of day of an own clock at this time if that time of day is within an above-mentioned time zone.

[0012] Consequently, since the important fault information generated in the time zone by 6:00 in the next morning can be notified also to a pocket bell 42 from 18:00 in which a manager is not near external management equipment 41 and the within-the-net management equipment 2, this important failure can respond promptly to the important failure which it was certainly transmitted to the notice place, therefore was generated.

[0013] Moreover, the manager resides permanently in the time zone from 8:00 to 18:00 near the within-the-net management equipment 2. When such information is set as the time-of-day-control section 14 as each information on a time zone and a notice place Important fault information is not transmitted between the above-mentioned time zones to external management equipment 41 and a pocket bell 42, but the time-of-day-control section 14 directs to transmit important fault information only to a pocket bell 42 to call origination equipment 15 in the Nighttime time zone which is the other time zone. Consequently, the communication link of the fault information between the call origination equipment 15 and the pocket bells 42 with which only the Nighttime time zone minded the public network 3 is performed, and since the communication link which minded the public network 3 except the Nighttime time zone is not performed, communication link cost is reducible.

[0014] Thus, since an external notice place is changed for every time amount and the important failure was notified when an important failure occurred within the exchange etc., an important failure is certainly transmitted to a notice place, therefore can respond promptly to the failure. Moreover, a time zone without the need of a manager residing permanently near the within-the-net management equipment 2, and notifying fault information via a public network, and since [which do not require sudden correspondence] fault information is not usually notified via a public network to a failure, communication link cost can be reduced.

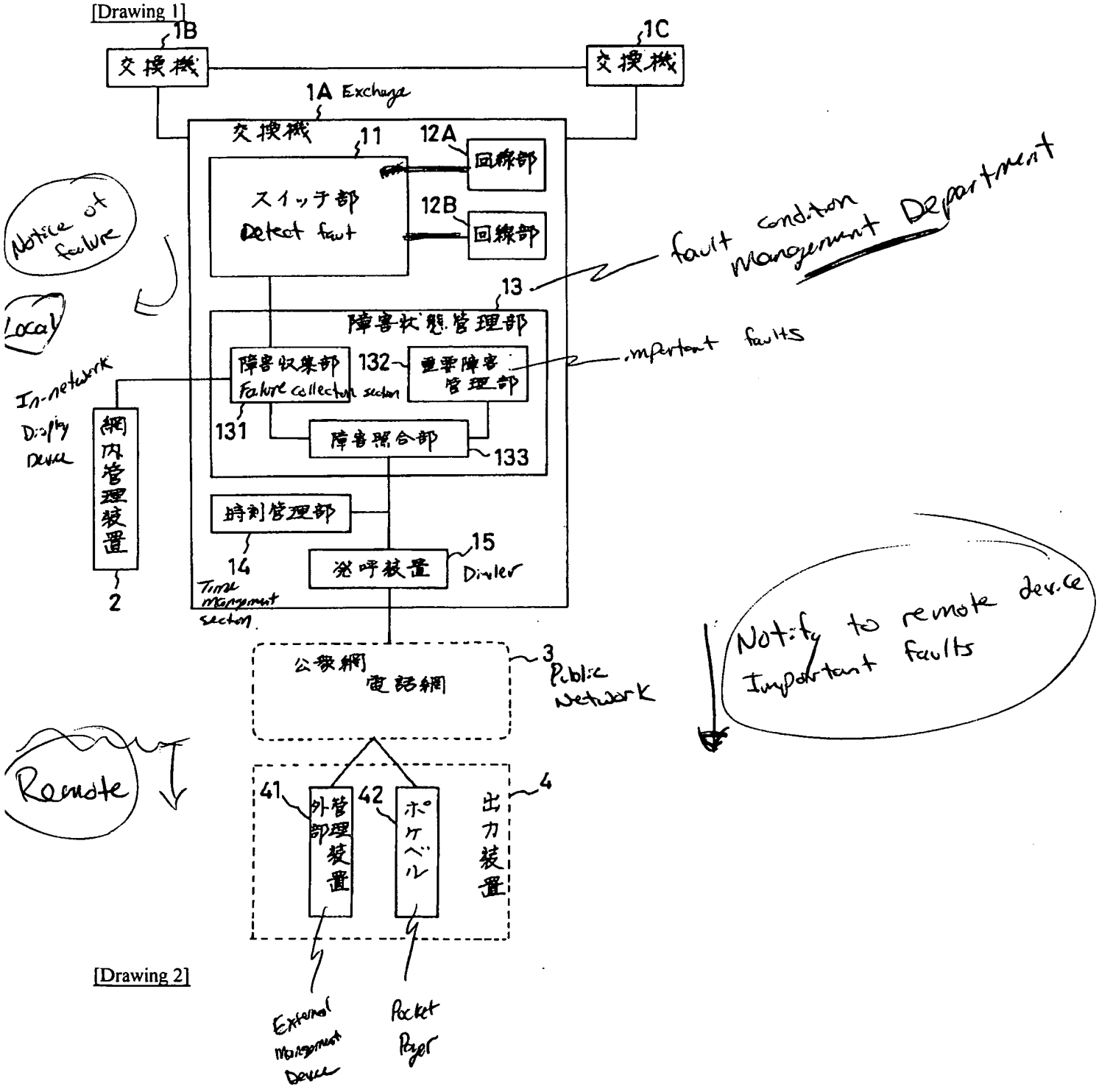
[0015]

[Effect of the Invention] As explained above, this failure judges whether it is an important failure at the time of failure generating to be the important fault management section which memorizes and manages an important failure according to this invention, and if it is an important failure Since the notice place through the public network of this important failure was changed for every time amount Since the important failure which needs sudden correspondence is transmitted to the notice place according to a time zone, if time zone information and the notice place corresponding to this are set up appropriately, it will become possible to be able to transmit important fault information to a notice place certainly, consequently to correspond promptly to an important failure. Moreover, since this failure was canceled when the collected failure did not correspond to an important failure, since it is not transmitted to a notice place through a public network, the fault information which does not require urgency can reduce communication link cost, when notifying fault information.

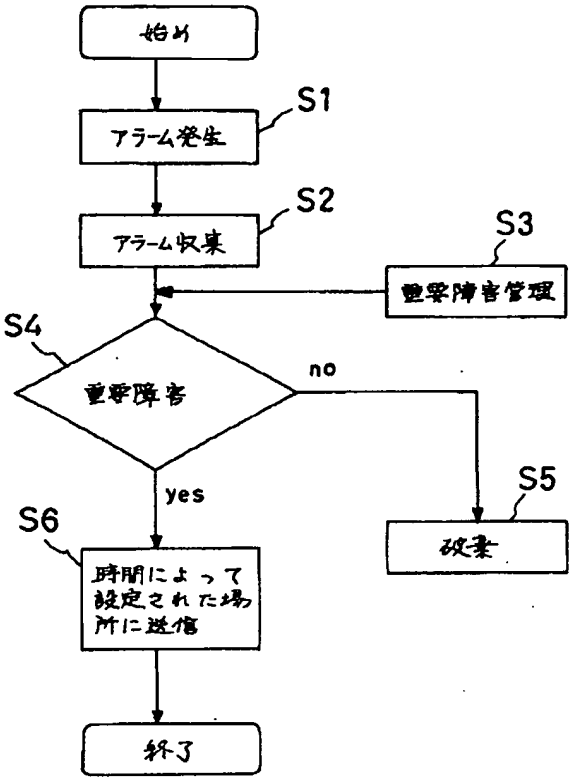
* NOTICES *

DRAWINGS

[Drawing 1]



[Drawing 2]



[Translation done.]